

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) An image analysis and conversion method comprising:

receiving a digital ink image having both text and line art; and

converting the digital ink image into multiple structured object representations of the digital ink image, the multiple structured object representations representing at least a first image representation having formal structured object representations, and a second image representation containing informal structured object representations, each of the structured object representations correlating to an ~~automatically a~~ defined perceptually salient structure of the digital ink image, each perceptually salient structure including text and line art, wherein each of the structured object representations is editable by a structured text/graphics editor, and

altering the digital ink image into multiple simultaneously existing structured alternative interpretations of the digital ink image each of the alternative interpretations being plausible intended outputs of a user.

2. (Canceled)

3. (Canceled)

4. (Original) The method according to claim 1 wherein the step of converting the digital ink image into structured object representations of the digital ink image includes configuring the structured object representations to represent an electronic slide of the structured text/graphics editor.

5. (Canceled)

6. (Currently amended) An image analysis and conversion method comprising:~~The method according to claim 5~~

receiving a digital ink image having both text and line art; and
converting the digital ink image into structured object representations of the digital ink image, each of the structured object representations correlating to an automatically defined perceptually salient structure of the digital ink image, each perceptually salient structure including text and line art, wherein each of the structured object representations is editable by a structured text/graphics editor, wherein the converting step includes forming of an Alternative graph, wherein the Alternative Graph is configured for the generation of a plurality of simultaneously existing, structured, alternative interpretations of the digital ink image, each of the alternative interpretations being plausible intended outputs of a user, and wherein the forming of an the Alternative Graph includes:

forming for each of a number of closed curvilinear paths, a first intermediate data structure, and placing in the first intermediate data structure a list of alternative interpretations of the closed curvilinear paths;

forming for each of a number of open curvilinear paths, a second intermediate structure, and placing in the second intermediate data structure a list of alternative interpretations of the open paths;

forming for text of a number of text groups, a third intermediate data structure, and placing in the third intermediate data structure, a list of alternative interpretations of the text;

determining spatial containment relations, for each intermediate data structure representing the closed curvilinear paths;

testing all other intermediate data structures and determining whether an object is spatially contained within the bounds of each of the closed curvilinear paths and, if so, denoting this relation in a contained-by slot of the intermediate data structure;

selecting all structures for which a contained-by slot of the intermediate data structures is empty;

creating an Alternative node for the Alternative Graph for each intermediate data structure for which the contained-by slot is empty; and
for each Alternative node, performing the steps of,
traversing a collection of objects related to the Alternative node,
counting at each intermediate data structure encountered a number of alternative interpretations of the objects,
defining, as N, a maximum of this count over all descendents of the Alternative node,
creating N nodes of a type, CHOICE,
linking the CHOICE type nodes to the Alternative node, and
constructing, for each choice branch of the Alternative node, a tree of descendent and nested objects.

7. (Canceled)

8. (Original) The method according to claim 1 wherein the editing by the structured text/graphics editor permits movement of structured object representations by at least one of, individual objects, a sub-group of all the structured object representations, or as an overall group of the structured object representations.

9. (Canceled)

10. (Currently Amended) An image analysis and conversion method comprising: The method according to claim 9
receiving a digital ink image having both text and line art; and
converting the digital ink image into structured object representations of the digital ink image, each of the structured object representations correlating to an automatically defined perceptually salient structure of the digital ink image, each perceptually salient structure including text and line art, wherein each of the structured object representations is editable by a structured text/graphics editor, wherein the digital ink image is converted into the structured objects representations of the digital ink

image through the use of an Alternative Graph, and wherein the forming of an the Alternative Graph includes:

- forming for each of a number of closed curvilinear paths, a first intermediate data structure, and placing in the first intermediate data structure a list of alternative interpretations of the closed curvilinear paths;

- forming for each of a number of open curvilinear paths, a second intermediate structure, and placing in the second intermediate data structure a list of alternative interpretations of the open paths;

- forming for text of a number of text groups, a third intermediate data structure, and placing in the third intermediate data structure, a list of alternative interpretations of the text;

- determining spatial containment relations, for each intermediate data structure representing the closed curvilinear paths;

- testing all other intermediate data structures and determining whether an object is spatially contained within the bounds of each of the closed curvilinear paths and, if so, denoting this relation in a contained-by slot of the intermediate data structure;

- selecting all structures for which a contained-by slot of the intermediate data structures is empty;

- creating an Alternative node for the Alternative Graph for each intermediate data structure for which the contained-by slot is empty; and

- for each Alternative node, performing the steps of,

- traversing a collection of objects related to the Alternative node,

- counting at each intermediate data structure encountered a number of alternative interpretations of the objects,

- defining, as N, a maximum of this count over all descendents of the Alternative node,

- creating N nodes of a type, CHOICE,

- linking the CHOICE type nodes to the Alternative node, and

- constructing, for each choice branch of the Alternative node, a tree of descendent and nested objects.

11. (Currently amended) An image analysis and conversion system comprising:

an image receiving input designed to receive a digital ink image having both text and line art; and

a converter configured to convert the digital ink image into structured object representations of the digital ink image, each of the structured object representations correlating to a perceptually salient structure of the digital ink image defined by the converter, each perceptually salient structure including text and line art, wherein each of the structured object representations is editable by a structured text/graphics editor and are in the form of at least one of formal structured objects and informal structured objects, and the converter including,

an image processing and segmentation module, which identifies classes of primitive image objects, including at least one of (i) small connected components at the scale of text characters, and (ii) substantially straight curvilinear line fragments uncomplicated by junctions, called stroke-fragments;

a text identification and layout analysis module which identifies groupings of the stroke objects representing runs of text characters forming text lines and columns, to generate a list of text group structures, each containing two or more alternative interpretations of the text groups;

a line art analysis module, which identifies groupings of stroke objects, to generate a list of line art group objects, each containing two or more alternative interpretations of the line art objects;

a construction of alternative graph module, which takes as input the lists of text and line art groups including alternative interpretations for each group, and constructs an Alternative Graph; and

an export to structured graphics editor module, which traverses the alternative graph and creates presentation slides with text and line art objects, and a hierarchy of groups.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)